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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,005	08/26/2003	Kee Yean Ng	70011333-2	5924
7590 06/25/2004			EXAMINER	
AGILENT TECHNOLOGIES, INC. Intellectual Property Administration Legal Department, DL429 P.O. Box 7699 Loveland, CO 80637-0599			PAREKH, NITIN	
			ART UNIT	PAPER NUMBER
			2811	
DATE MAILED: 06/25/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/649,005

Applicant(s)

NG ET AL.

Examiner

Nitin Parekh

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 4, 8, 9, 11 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Lee (US Pat. 5821615).

Regarding claims 1, 8, 11 and 14, Lee discloses a surface mountable electronic device (SMD- Fig. 2) comprising:

- a body with a first/bottom surface (see the bottom of 21 in Fig. 2) for mounting the device
- recessed/crooked portions within/on the first surface (see recessed surfaces on the bottom of 21 in Fig. 2), the recessed portions having crooked/staple shape
- a plurality of electrical contacts on/in the first surface (see 13' and 12 in Fig. 2), the electrical contacts including the first recessed portions which form a portion of the inner surface of the recessed portions of the body (see 13' in Fig. 2) and second portions (see 12 in Fig. 2) in non-recessed area of the first surface, and

- the electrical contacts extending outwardly along the first surface of the body having the first portions being positioned towards the outer edges of the first surface of the body

(Fig. 2 and 4A; Col. 3).

Regarding claim 2, Lee teaches the entire claimed structure as applied to claim 1 above, wherein Lee further teaches:

- each of the electrical contacts extending along said first surface, and
- when the first surface is mounted on a planar surface, the first portions would be spaced apart from the planar surface due to the presence of the recessed portions (see Fig. 4A in combination with the device of Fig. 2; Col. 3, line 63).

Regarding claim 4, Lee teaches the entire claimed structure as applied to claim 1 above, wherein Lee teaches the first portions within the recessed portions being crooked/staple-shaped and not parallel to the first surface.

Regarding claim 9, Lee teaches the entire claimed structure as applied to claims 1 and 8 above, wherein Lee teaches the outer surfaces of the second portions being substantially flush with the first surface (see Fig. 4A).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 3, 5-7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (US Pat. 5821615) in view of Minamio et al. (US Pat. 6208020).

Regarding claims 3, 5-7 and 10, Lee teaches the entire claimed structure as applied to claims 1 and 4 above, except at least a portion of the first portions within the recessed portions being:

- substantially parallel, orthogonal or extending diagonally away from the first surface, or
- a diagonal portion extending diagonally away from the first surface and a parallel portion extending substantially parallel to the first surface and being connected to the end of the diagonal portion farthest away from the first surface, or

- the second portions extend substantially parallel to the first surface from the ends of the diagonal portions of the first portions, which are closest to the first surface.

Minamio et al. teach a SMD where a bottom/first surface of the SMD has grooves/recesses having a variety of shapes including curved shape, slot shape, etc., (see 11, 12, etc. in Fig. 17a) including the groove/recess having an inner surface being substantially parallel to the bottom/first surface (see the bottom surface of 11 in Fig. 17a), orthogonal or extending diagonally away from the first surface (see vertical and angular surfaces of 11, 13, 14, etc. in Fig. 17a; Col. 19, lines 60-67; Col. 19 and 20). Minamio et al. further teach the lead configuration being such that second portions extend substantially parallel to the first/bottom surface from the ends of the diagonal portions of first portions, which are closest to the first surface (see shape of 13 and 2 in Fig. 17a).

Lee further teaches another embodiment (see Fig. 3), where portions of the electrical contacts of the inner lead on a second/top surface (see a shape of 11 in Fig. 3) having a diagonal portion extending diagonally away from the second surface and a parallel portion extending substantially parallel to the second surface and being connected to the end of the diagonal portion farthest away from the second surface (Col. 3, line 25-43).

It would have been obvious to a person of ordinary skill in the art at the time invention was made to incorporate at least a portion of the first portions within the

recessed portions being substantially parallel, orthogonal, extending diagonally away from the first surface a diagonal portion or extending diagonally away from the first surface and a parallel portion extending substantially parallel to the first surface and being connected to the end of the diagonal portion farthest away from the first surface or the second portions extending substantially parallel to the first surface from the ends of the diagonal portions of the first portions which are closest to the first surface so that the desired clearance between the body and the mounting surface can be achieved and the bonding can be improved in Lee's SMD.

5. Claims 12, 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (US Pat. 5821615) in view of admitted prior art (APA).

Regarding claim 12, Lee teaches the entire claimed structure as applied to claim 1 above, wherein Lee teaches mounting the SMD on a printed circuit board/PCB (see Fig. 4A), but fails to teach having an adhesive between the first portions and the PCB.

The APA teaches using a conventional joint adhesive material/solder to provide the bonding/connection between the device and the PCB (APA: Fig. 1A-3; pages 2 and 3).

It would have been obvious to a person of ordinary skill in the art at the time invention was made to incorporate the adhesive between the first portions and the PCB

as taught by the APA so that desired adhesion and bonding can be achieved in Lee's SMD.

Regarding claim 13, Lee teaches the entire claimed structure as applied to claim 1 above, except the electrical contacts being heat sinks.

The APA teaches using conventional adhesive/joint material such as solder to provide the connections and bonding between the electrical contacts and the substrate, the joint material being thermally and electrically conductive (see 11, 211, etc. in Fig. 1A-3; pages 2 and 3).

Lee further teaches other embodiments having stacked devices (see Fig. 4C and 4D) where the electrical/metal contacts are coupled to the PCB such that they provide functions of electrical connection and thermal dissipation.

It would have been obvious to a person of ordinary skill in the art at the time invention was made to incorporate the electrical contacts providing the function of the heat sink as taught by the APA and Lee so that the thermal dissipation can be improved in Lee's SMD.

Regarding claim 15, Lee teaches the entire claimed structure as applied to claim 1 above, except the device being selected from a group consisting an opto-electric device and a light-emitting device.



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The APA teaches using the SMD package having a conventional opto-electronic device (101, 201, etc. in Fig. 1A-3; pages 2 and 3).

It would have been obvious to a person of ordinary skill in the art at the time invention was made to incorporate the device being selected from a group consisting an opto-electric device and a light-emitting as taught by the APA so that desired application and functional characteristics can be achieved in Lee's SMD.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nitin Parekh whose telephone number is 571-272-1663. The examiner can normally be reached on 09:00AM-05:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on 571-272-1732. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9318.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



Nitin Parekh

PATENT EXAMINER

NP

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